

## FINAL REPORT ON COMMUNITY OUTREACH TO AT RISK URBAN ANGLERS

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### INTRODUCTION

In the state of New Jersey, with more than 130 miles of coastline, fishing is a multi-billion dollar commercial industry and a popular recreational sport. New Jersey is also home to most of the largest chemical producers in the country, most of which located near the most accessible transportation routes of the time, the bays and estuaries of the coast. With its successful industries creating many jobs and its convenient location, New Jersey also attracted a population of more than seven million people, most of them concentrated in the heavily industrialized northeast. (Shaw, 1994)

In 1977, EPA moved to ban the manufacture of PCBs, a probable carcinogen known to produce toxic effects in the laboratory at very low doses. Due, most likely, to a discharge of more than 500,000 pounds of PCBs from a facility on the Hudson River (Barclay, 1993) these substances along with dioxins and other related substances passed through the aquatic environment of the Newark Bay Complex where they continue to enter the food chain of crustaceans and finfish and build up in Bay sediments. (Shaw, 1994)

The Newark Bay Complex includes the Newark Bay, the Hackensack River downstream of the Oradell Dam, Arthur Kill, Kill Van Kull, tidal portions of all rivers and streams that feed into these waters. It also includes the Passaic River downstream of the Dundee Dam and streams that feed into this section of the river. The complex is a highly industrialized urban area consisting of a large racially and culturally mixed population of more than three million people. It covers more than 30 local governments and five counties.

In 1982, research conducted by the NJDEP in the Newark Bay Complex showed elevated levels of chemical contaminants in certain fish and crabs (Belton et al., 1982). Subsequently, advisories were adopted by the State of New Jersey to guide citizens on safe consumption practices. These advisories were developed with reference to federal guidelines for dioxins and PCBs. These contaminants have been classified by the United States Environmental Protection Agency as probable cancer-causing substances in humans.

The species under advisory in the Newark Bay Complex include, bluefish, blue crabs, American eels, white perch, striped bass, and white catfish. Advisories range from do not eat, to eat no more than once a week or once a month depending on whether you are considered a high risk individual or general population. A high risk individual is defined as a woman of child bearing age, pregnant women, nursing mothers and children up to 15 years of age. The primary health effects of concern are reproductive disturbances, developmental problems and an increased chance of developing cancer if consumed over a life time.

Subsequently, the fish consumption advisories were issued through the NJ Fish and Game Digest, a publication distributed to licensed anglers and bait and tackle shops throughout the state and signs were posted in the areas where research was conducted. Since then, the state has notified the public of the bans and advisories each year through the NJ Fish and Game Digest. In addition the state Department of Health has sent notices to local and county health departments throughout the state at the beginning of fishing season.

While this approach has been successful in reaching most recreational anglers in the state who purchase a fishing license, it has not been effective in reaching many urban recreational and subsistence anglers in the Newark Bay Complex. The primary problem with this notification is that a fishing license is not required in the Newark Bay Complex because it is an estuarine water way.

Fishing organizations and environmental groups concerned that urban recreational anglers and subsistence anglers were not receiving vital health information about consumption of contaminated fish and crabs approached the NJDEP and asked that a special outreach effort be initiated in the Newark Bay Complex.

The New Jersey Department of Environmental Protection's Division of Science and Research responded by applying for and receiving a grant from EPA Region II to undertake a public outreach effort that would go beyond the public notification procedures the department was already conducting to develop a community based approach to communication. This final report is a summary of the activities that have taken place in the last two years in the Newark Bay Complex.

#### SUMMARY OF ACTIVITIES

The two-year project was initiated in the fall of 1993. The project is unique for two reasons: 1. it attempts to deal with the inequity of traditional communication channels by reaching into communities to identify citizen leaders who can help government reach those citizens most in need of advisory information, and 2. it has been designed so that residents of the

area would take the lead and direct the state in developing the most effective communication strategies to notify their neighbors of the fish consumption advisories and encourage them to comply.

Public education programs cannot necessarily guarantee adherence of government advisories. However, research has shown that using a grassroots community approach to develop the education program increases the likelihood of local cooperation because local concerns are incorporated.

From the start, the department's approach to the project has employed the basic tenants of risk communication — that citizens participate in decision-making and that they have access to all information on the subject in order to make informed choices. This approach — working with citizens within a community — establishes a contact for the state at the local level and in turn a contact for local leaders at the state to share information.

The project began with identification of community leaders and an assessment of their knowledge and concerns about fish consumption advisories. This initial contact took the form of a phone interview with selected citizens. These people included local and county health officers, conservation officers and marine police, environmental and fishing group members and civic leaders. The phone interview sought to learn respondents' knowledge of fish consumption advisories, knowledge of health effects associated with consumption of contaminated fish, concern about the issue, and how they share information with citizens in their community.

The results demonstrated that overall, while there was a vague awareness of fish consumption advisories, it was not an important health issue to area health officers and they were not routinely issuing advisory information to their constituents. In fact, some health officers were not convinced of the necessity of advisories. Sportsmen's groups indicated that they had a vague awareness of the advisories and while some were complying, most recreational anglers either did not know about the advisories or did not believe there was a problem with the fish and crabs. In addition, we learned that where advisories could be enforced, enforcement activities were, for the most part, not taking place. In short, the advisories in the Newark Bay Complex were virtually unknown or were being ignored.

The survey identified six project goals:

1. to inform urban anglers of the fish consumption advisories and bans;
2. to explain the health risks associated with consumption of contaminated area fish and crustaceans;
3. to reduce exposure to potential health risks;
4. to establish mechanisms to disseminate future information quickly and effectively to urban anglers, local environmental managers, and health care providers;

5. to establish programs to encourage catch and release, focusing on the benefits of recreational fishing, and
6. to establish an ongoing volunteer network of people to assist with information distribution to urban anglers annually.

At about the same time interviews were being conducted, a site visit of the Complex took place. Three key fishing and crabbing sites within the Newark Bay Complex were identified. The three sites selected were Hudson County Park in Bayonne, Overpeck Park in Bergen County and Elizabethport Marina in Elizabeth. It was around these three sites that three community groups from the several surrounding cities and municipalities were organized.

From January through March of 1994, meetings were held with local and county health officials, county and city park officials, and community groups at the three sites. The early meetings focussed on educating local leaders about the advisories, learning more about the fishing sites as well as identifying others, learning some of the local issues within the project's communities, sharing data from state fish tissue studies that resulted in the issuing of the fish consumption advisories, making state scientists available to citizens to answer scientific and health risk questions, explaining how the studies were conducted and learning who would emerge as the leaders and organizers within each group.

At each meeting, project organizers encouraged local leaders to share fish consumption advisory and health risk information with their colleagues and to let the state know who else should be involved in the project.

Each site had its unique personality and problems. Each site suggested different ways to approach the problem. However, what all three sites had in common were the need for information materials to be disseminated to the public. This led to the development of a brochure describing the advisories and signs that could be posted around key fishing and crabbing sites in the Complex. (See the appendix for samples.) One local environmental group took the signs provided by the state and through a donation from PSE&G, produced 100 signs on metal and distributed them to communities throughout the complex.

In addition to development of these materials, two public information meetings were held in two communities within the Complex. One meeting was held in April 1994 in Bayonne and the second meeting took place in June 1994 in Secaucus. Citizens in the area had the opportunity to ask questions, talk to state scientists and have a better understanding of health affects associated with consumption of contaminated fish and crabs. Throughout that first summer, brochures and flyers were distributed to local leaders for their use in community outreach and for distribution at local events. For example, the City of



Bayonne made it a priority to distribute information flyers to all city day campers. Other communities such as the City of Elizabeth, Woodbridge and Linden posted warning signs along their water ways and notified the public of the advisories through their local press. In addition, many health educators who were members of the site team shared information about the fish consumption advisories and health effects from eating contaminated fish with their patients, clients and at public outreach programs they conducted.

In September 1994, a midterm evaluation was conducted of the project. All site team members as well as fishing and environmental organizations were contacted for interviews. The evaluation focused on where signs were posted and if they were still posted, the use of brochures and other information materials, what events would be appropriate in the next year to hand out flyers about advisories, what was their opinion of the project so far, what other community networks should be included in the second year of the project, and whether there was an increase in catch and release, a reduction in the harvesting of blue crabs, and suggestions for changing behavior in fish consumption patterns. (See summary in the appendix.)

Despite community based outreach efforts, the midterm-evaluation indicated that many urban anglers were still unaware or unconcerned about current State fish consumption advisories. This appeared to be true particularly among anglers not connected to fishing organizations and ethnic groups who rely on certain species of fish and crab as a source of protein. It appeared that local customs, disbelief of health information and the availability and the healthy appearance of fish and crabs was a barrier to compliance with advisories. In addition, it pointed to a need for better information on who are the Complexes urban anglers, how do they get their information about fish and fishing and who do they trust to deliver this information. In addition, several suggestions were made for year two of the project:

1. place more signs around the Complex;
2. create more non-English brochures;
3. use the non-English media more;
4. contact additional sports organizations;
5. post fish consumption advisories in bait and tackle shops;
6. participate in more local events, and
7. identify more volunteers to hand out brochures at known fishing areas in target communities.

Through conversations with health professionals and environmental groups we also learned that:

1. Citizens are confused about health risk information discussed in the advisories and how their health could be affected by consumption of contaminated species;

2. Critical groups who need the information, such as non-English-speaking anglers and subsistence anglers, are not receiving the advisory information;
3. If the State expects subsistence anglers to stop consuming contaminated species, alternative sources of protein need to be provided, and
4. Educational leaders suggested that a classroom curriculum focussing on the impacts of pollution on the food chain and ultimately human health be developed so that future urban anglers would be better informed about contaminated species and more knowledgeable about how to protect their health.

These results pointed to a need to initiate a more targeted public information campaign tailored to: (1) ethnic communities, such as Portuguese, Korean, Polish and others who may be non-English-speaking, of low economic status and whose cultural traditions may include consumption of these contaminated species; (2) subsistence anglers who may not be affiliated with professional and recreational organizations and whose primary source of protein may be contaminated fish; and (3) school age children in the Newark Bay Complex who would benefit from an environmental education curriculum that includes an explanation of the relationship between pollution, fish consumption and health. It also pointed to a need to conduct an urban angler survey in order to design a more effective outreach program that reaches urban anglers and reaches them with information through trusted and reliable channels.

#### YEAR TWO

Year two focussed on projects that would identify and address the barriers to compliance with the fish consumption advisories. This was achieved through several activities that were recommended by site team members. The major areas of focus were:

- 1) a 60-second Public Service Announcement in English, Spanish and Portuguese for distribution on local cable channels in the Complex;
- 2) use of the networks of the community leaders to reach more deeply into the community to share health risk information associated with fish consumption;
- 3) translation of existing information materials into languages as identified by site team members and the community;
- 4) a teacher workshop to develop a school curriculum on fish consumption advisories and bioaccumulation;
- 5) distribution of signs and brochures to community organizations as needed and requested;
- 6) education programs targeted to youth and adult groups on fish consumption advisories that address the recreational benefits of fishing and acknowledge the aspects of reducing health risks by releasing the catch, and

- 7) an urban angler survey at known fishing and crabbing locations throughout the complex to develop a more accurate profile of the Complex's urban anglers and to learn how they get their information about fish and fishing and who they trust to deliver this information.

### Angler Survey

One of the major projects conducted in year two of this study was an urban angler survey (see appendix for interview protocol) in the Newark Bay Complex to develop a more accurate profile of urban anglers, e.g., socio-demographic features, how anglers get and use fishing information, and consumption habits. This information would assist site team members in developing a more targeted outreach campaign to specific segments of the population fishing and consuming contaminated fish and crabs that specifically focussed on the barriers to compliance with advisories. The survey would also provide information on consumption patterns that may assist in the development of health risk estimates. Therefore, the focus of this survey is to better identify the populations exposed to contaminated fish and crabs. These include subsistence anglers, supplemental anglers and recreational anglers as well as consumers of fish, especially people in the high risk category, e.g., women of child bearing age and children. The ultimate goal is to improve the outreach methods used by state and local officials to communicate with urban anglers about public health hazards concerning consumption of contaminated fish and crabs and ways to mitigate their risk.

### METHOD

In person interviews with urban anglers at key fishing and crabbing sites around the Newark Bay Complex were conducted from July 1995 through October 1995. Three hundred interviews were completed. This approach was selected due to the fact that a fishing license is not required for waters in the Newark Bay Complex. Attempting to locate anglers who fish in the Complex through the mail or telephone, even if a New Jersey fishing license list were used, would be of limited value. In person interviews at key locations in the Complex would greatly increase the likelihood of reaching urban anglers who are residents of the Newark Bay Complex.

A volunteer workforce from local fishing groups and environmental groups as well as three summer interns and DEP personnel conducted the surveys. Training of interviewers took place prior to entrance into the field. Interviewers entered the field in groups of two. In some instances, they were accompanied by a local angler familiar with the site. Key fishing and crabbing locations around the Complex were selected based on suggestions by angler groups as well as observations from DEP field personnel familiar with the area. Twenty-six sites were selected throughout the Complex. Some of these sites included: Hudson County Park, Lincoln Park, Overpeck Park, Bayonne City

Park, Elizabethport Marina, Perth Amboy Marina, Woodbridge, etc., and several bridges that are known active fishing sites. Interviewers gained access to these sites by foot and by boat.

A pretest of the survey in early July with representatives of the target audience took place prior to the actual field study. This helped ensure the reliability of the survey instrument by ensuring that responses to the questions asked yielded the information needed. Interviews took approximately fifteen to twenty minutes to complete. Interviews were conducted on weekdays as well as weekends in order to ensure the widest possible cross section of participants in the survey.

The target audience for this study was the Newark Bay Complex Urban Angler. In order to develop an urban angler profile, basic demographic information was sought. This included: ethnicity, income, places of residence, education, children in the household-ages, marital status, others living in the home-ages, women of child bearing age, etc.

Next, the survey sought to learn how anglers get their information about fishing/health/food, etc. and who they trust to deliver this information. In other words what are the important places to get news about the community? In addition, the survey sought to learn urban anglers' knowledge of the advisories, where they heard about the advisories, knowledge of health effects, and their belief in health risk information regarding consumption of contaminated fish and crabs.

The survey also sought to learn why urban anglers fish. Is it for fun or food or some combination of both? This information would assist the state in developing a communication plan that is sensitive to economically challenged citizens by providing alternatives to consumption of contaminated fish and crabs. It would also tell the state how large this population is and to what extent exposure to dioxins and PCBs this group might be experiencing..

Related issues sought in the survey included knowledge and perception of pollution of the Complex. For example, do you think the water here is clean? Do you think the fish you catch are clean? Do you think they are okay to eat? Why, why not for these questions? Do you know what will happen if you eat unsafe fish? What? What do you do to make sure the fish you catch are safe to eat?

Finally, the survey sought to gain information on consumption patterns and practices of the urban anglers and their families. For example: How often do you fish here? Where else do you fish? What do you fish for? How often do you fish? Do you keep what to catch? What do you keep and what do you release? Do you eat what you catch? Do you give away what you catch? Do you sell what you catch? Do other people in your household eat what you catch? How do you prepare it? How often

do you and your family eat what you catch? How do you prepare what you eat? Do you clean your catch? How do you clean it?

Results from the survey will be discussed in the final report of the follow-up study on this project. This second study is due to conclude in December 1996.

### Lesson Plans

In March 1995, a meeting with the Overpeck Park Site Team (Bergen County) was held. At that meeting, the group decided to focus their efforts on the development of education materials about fish consumption advisories and bioaccumulation. These lesson plans could then be used by both health educators in presentations to school group, youth groups, and by classroom teachers.

The project began with the development of learning objectives and learning outcomes. The goal of these learning objectives and outcomes was to serve as a guide for the development of a series of lesson plans on health risks associated with consumption of contaminated species and techniques to reduce risk and prevent the pollution which caused fish to become contaminated.

Following the development of these guidelines, departmental staff conducted a literature search and review of existing curriculum materials to determine if there were education materials that met the needs of the community. Several lesson plans were compiled. In June 1995, 40 teachers, health educators, environmentalists and fishing organizations were invited to participate in a writer's workshop. In advance of the workshop, participants received the packet of lesson plans that had been compiled for this effort. Teachers were asked to review the material and determine what might be used, what might be adapted and what else was needed to meet the objectives of the Overpeck Park Site Team.

At the workshop, participants were divided into several groups. Each group focussed on a different aspect of the fish consumption issue. For example, one group focussed on lessons dealing with risk reduction, another with proper preparation of fish, another with health risk and another bioaccumulation and pollution prevention. By the end of the meeting, 30 new lesson plans had been suggested. A follow-up meeting edited these 30 down to 20. Currently, a consultant has been hired to complete the lesson plans. Field testing is anticipated in the fall of 1996 and distribution is planned for spring 1997. (See draft of the lessons in Appendix.)

### Public Service Announcement

A third project suggested by the Elizabeth Site Team was the need for an educational video on the fish consumption advisories



that could be used in the schools and distributed on public access cable. It became clear to the group that two videos were needed: a Public Service Announcement (PSA) alerting the public about fish consumption advisories and an educational video for women's health clinics describing in detail the health effects of consumption of contaminated fish and how to reduce exposure. The group focussed first on the 60-second video.

The development of a 60-second Public Service Announcement (PSA) was designed to be released at the beginning of the fishing season to alert the public about fish advisories. The PSA was taped in three languages - English, Spanish and Portuguese. It would be made available to those communities and organizations that have been part of all three of the site teams. Therefore each community would have control over how and when it would be released to the public.

The 60 - second PSA was shot near Hudson County Park in July 1995. A script for the PSA was developed and approved by the Elizabeth committee. The PSA will be set to air during the summer of 1996.

Development of the 5-minute education video on the health effects from eating contaminated fish and crabs to pregnant women and children will take place during the spring of 1996. An approved script has been forwarded to the video firm shooting the footage and talent will be hired to do the voice-overs for the video. Site team members will be asked to devise a distribution plan and suggest which clinics in the Newark Bay Complex should be targeted to receive the video.

### Community Outreach

For the second year of the project, most community outreach to the site teams focussed on the development of each of the activities described above. During the project's first year, outreach was accomplished along many student avenues including: Project C.O.R.E. (Community Organized to Regain the Environment) students from juvenile detention centers interested in bettering themselves and their environment, JTPA (Job Training Partnership Act) summer high school students from inner-city schools interested in future environmental occupations, participation in an Eco-tour of the Arthur Kill attended by elementary school students as well as participating in the DEP Student Summit attended by high school representatives from around the state. Contacts and places of brochure distribution included growing. Some of the additional outreach programs include the following: the Elizabeth Community Policing program, the Diamond Shamrock Citizen Advisory Committee, Arthur Kill Watershed Association, NJ Assemblyman Joseph Doria, and many teachers and individuals involved with environmental education in the Newark Bay Complex. Papers were also presented at the Marine and Shallow Water Management Conference and the EPA Conference on Community Participation.

## CONCLUSION

Sandman talks about the need and importance of agencies to earn trust and credibility among citizens when seeking to communicate with them. (Hance, 1989). In the best of circumstances, this can be a difficult challenge for agencies. But when you add language barriers, cultural traditions and low economic status to the equation mixed with limited physical access to the citizens, the challenge can become daunting. It takes time to build effective working relationships and it takes time to earn trust. I can honestly say in addition to developing information materials, the bulk of the first year was spent on this component of communication alone. But again, in order to have equal and just communication, the time spent on earning trust and credibility is critical and for us have been well spent. If we had not taken the time upfront to become better acquainted with the area and the people, we are attempting to enlist as our local contacts we would never have been successful in mobilizing their support and involvement in the project.

Ultimately, the goal of this project is to educate citizens so that they have choices and that the choices they make are informed choices which will protect their health. With encouragement from community leaders combined with a public information program that offers alternatives, citizens will have the power to improve their society. Through the education efforts of this project, citizens can affect changes in local consumption patterns and behavior by knowing alternatives to consumption of unsafe fish and crabs, by learning of safer locations to fish and crab, and by learning how to properly prepare those fish they can consume in limited quantities to safeguard their family's health.

It is not enough for government to simply release fish consumption advisories to the public through traditional channels such as the press, and expect the public to change behavior. If government is truly concerned about protecting public health, it must take the time and interest to learn who the affected publics are, to identify their concerns and to offer alternatives to citizens whose customs and traditions may be negatively impacted by government action. This is the only equal and just way in which to communicate, particularly to communities and citizens most at risk. This final report summarizes one method to achieve this objective.

## REFERENCES

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## APPENDICES